CLAIMS

1. An electromagnetic radiation absorber for absorbing radiation in the wavelength range λ_{min} to λ_{max} comprising a dielectric layer sandwiched between first and second conductor layers wherein the first conductor layer carries a plurality of apertures of sub-wavelength dimension and wherein the thickness of the absorber is less than $\lambda_{min}/4n$, where n is the refractive index of the dielectric.

2. An electromagnetic radiation absorber for absorbing radiation in the wavelength range λ_{min} to λ_{max} comprising a conductor layer in contact with a dielectric layer wherein the conductor layer carries a plurality of apertures of sub-wavelength dimension and wherein the thickness of the absorber is less than $\lambda_{min}/4n$, where n is the refractive index of the dielectric.

3. An e/m radiation absorber as claimed in claims 1 or 2 wherein the thickness of the material is less than $\lambda_{min}/10$.

4. An e/m radiation absorber as claimed in any of claims 1 to 3 wherein the apertures are slit structures.

5. An e/m radiation absorber as claimed in claim 4 wherein the slit structures are periodic in nature.

6. An e/m radiation absorber as claimed in claim 4 or 5 wherein the slit structures are curved.

7. An e/m radiation absorber as claimed in claim 4 or 5 wherein the slit structures comprise a series of non-parallel slits.

8. An e/m radiation absorber as claimed in claim 4 or 5 wherein the slit structures comprise a parallel slit arrangement.

9. An e/m radiation absorber as claimed in claim 8 wherein the wavelength λ of radiation absorbed is determined by

$$\lambda \approx 2nG/N$$

where λ is the wavelength in the range λ_{min} to λ_{max} where maximum absorption occurs, n is the refractive index of the dielectric, G is the spacing of the slits and N is an integer greater than or equal to 1.

10. An e/m radiation absorber as claimed in claim 4 or 5 wherein the slit structure comprises two orthogonal sets of parallel slits.

11. An e/m radiation absorber as claimed in any of claim 4 or 5 wherein the slit structures comprise three sets of parallel slits at 60 degree azimuthal separation.

12. An e/m radiation absorber as claimed in any of claims 4 to 11 wherein the slit width is less than 400 microns.

13. An e/m radiation absorber as claimed in claim 12 wherein the slit width is less than 50 microns.

14. An e/m radiation absorber as claimed in any preceding claim wherein the refractive index of the dielectric can be actively varied.

15. An adhesive tape comprising an e/m radiation absorber according to any preceding claim.

16. An automobile wherein a proportion of the surface of the automobile is covered in an e/m radiation absorber according to any of claims 1 to 13.

17. A panel covering for application to a building wherein the panel is covered in an e/m radiation absorber according to any of claims 1 to 13.

18. A heating element for use in a microwave comprising an e/m absorber as claimed in any of claims 1 to 13.

19. A tagging system comprising an e/m absorber as claimed in any of claims 1 to 13.